

Vasavi College of Engineering

Department of Computer Science and Engineering

A Report on Guest Lecture Delivered by Dr. Naveen Sivadasan on “Advance Algorithms” Conducted on Mar 6th,2013

A Guest Lecture on “**Advance Algorithms with extra emphasis on Randomized Algorithm**” was delivered by Dr. Naveen Sivadasan, Department of Computer Science & Engineering , IIT Hyderabad for the students audience of M-Tech (CSE) 1st year on Mar 6th,2013 .

The resource person is one of the well known faculty in teaching faternity & has been awarded For Excellence in Teaching in during 2011-2012 and his research areas includes Algorithms and Graph Theory.



Speaker has started off session with the brief introduction to the various analysis methods.

1. Probabilistic analysis.
2. Randomized algorithms.
3. Probabilistic methods.



Speaker was more inclined towards the significance of Randomizes Algorithm and its applications (Eg: Load Balancing Problems).

To comprehend his explanation on Randomized Algorithms speaker took Quick Sort Problem and proved its Time Complexity by providing justified approach using Random permutations for deriving the Average case analysis of Deterministic Quick sort as $O(n \log n)$.

Deterministic Quick Sort:

Let us consider the input $\{1, 2, 3, \dots, n\}$

- Take first element of pivot.
- Split the items retaining the relative order.
- Recursively solve the two subsets.

- Calculate the mean of all possibilities.

Total Number of Comparison = A node in questions compared with all ancestors = Depth of the node.

The students audience felt the session to be highly informative and useful as the approach adapted by speaker for proving the time complexity using randomized approach was very useful for the students.